II. REMARKS

As an initial matter, the Examiner has not yet considered the Information Disclosure Statement (IDS) filed in this case on February 2, 2010. Applicant respectfully requests that the Examiner consider the IDS filed on February 2, 2010.

Claims 1-17 and 19-110 are pending. However, claims 7-17, 19-21, 33-62, 67-80, 85-89, 93-97, 99-101, 103-105 and 107-109 have been withdrawn, and claims 1-6, 22-32, 63-66, 81-84, 90-92, 98, 102, 106 and 110 have been examined.

By this paper claims 1-4, 22, 24, 81, 82-84, 90-92 and 102 have been amended. More specifically, independent claim 1 has been amended to incorporate subject matter from claim 3, and so that the preamble recites

> "[a] copper alloy material in wire or bar form for forming a netted structure used in seawater under harsh conditions wherein the netted structure is exposed to water or waves running at high speed and rubbing,"

as supported by ¶ [0034] of Applicant's specification as originally filed. Claim 1 has also been amended to recite "and the copper alloy material forms an Al-Sn or a Si-Sn coating when in seawater" as also supported by ¶ [0034] of Applicant's specification as originally filed.

Claims 2 and 3, which each depends upon claim 1, have been amended to improve clarity in view of the amendment to claim 1. Claim 4, which depends upon claim 2, has been amended to improve clarity in view of the amendment to claims 1 and 2. Claims 22, 24, 81, 82-84, 90-92 and 102 are all dependent claims, and have been amended to improve grammar and/or clarity, and not for a reason related to patentability. Therefore, the present amendment to claims 22, 24, 81, 82-84, 90-92 and 102 has no further limiting effect on the scope of these claims.

The present amendment adds no new matter to the above-captioned application.

A. The Invention

The present invention pertains broadly to a copper alloy material in wire or bar form for forming a netted structure used in seawater, such as may be exposed to harsh conditions such as water or waves running at high speed and rubbing. Thus, in accordance with the present invention, a copper alloy material is provided that includes features recited by independent claim 1. Various other embodiments, in accordance with the present invention, are recited by the dependent claims.

An advantage provided by the present invention is that a copper alloy material is provided wherein the alloy is corrosion resistant and may be used in seawater.

B. The Rejections

Claims 3, 4, 29-32, 64, 66, 82, 83, 91, 92, 98, 102, 106 and 110 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite.

Claims 1, 2, 5, 6, 22-28, 63, 65, 81, 84 and 90 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Oishi et al. (JP 10-152735, and English Machine translation, hereafter collectively the "Oishi Document"). Claims 3, 4, 29-32, 64, 66, 82, 83, 91, 92, 98, 102, 106 and 110 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the Oishi Document, and further in view of Furukawa Electric (JP 49-040226 A, hereafter, the "JP'266 Document").

Applicant respectfully traverses the Examiner's rejections and requests reconsideration of the above-captioned application for all of the following reasons.

C. Applicant's Arguments

In view of the present amendment, claims 1-6, 22-32, 63-66, 81-84, 90-92, 98, 102, 106 and 110 are in compliance with 35 U.S.C. § 112.

The Examiner contends that the claimed formulas are unclear because it is uncertain whether every element in the Markush groups is required (Office Action, dated February 23, 2010, at 2, lines 15-17). Applicant traverses the Examiner's contention because a person of ordinary skill in the art would immediately realize that when only one of the elements from the Markush group is selected, the content of the non-selected elements is 0%, and when more than one element from the Markush group is selected, then the content of the non-selected elements is 0%.

For all of the above reasons, claims 1-6, 22-32, 63-66, 81-84, 90-92, 98, 102, 106 and 110 are in compliance with 35 U.S.C. § 112.

i. The Section 103 Rejection

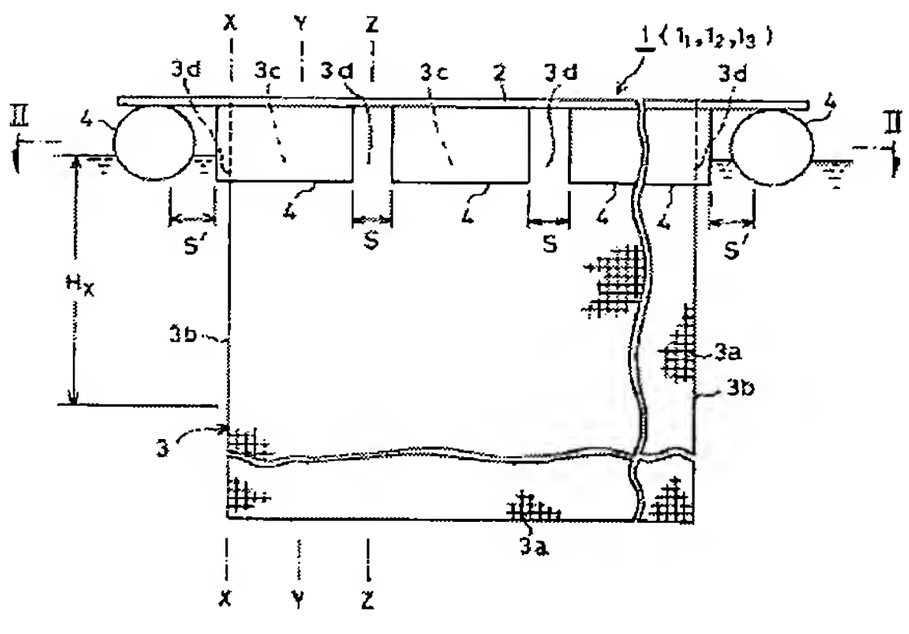
A prima facie case of obviousness requires a showing that the scope and content of the prior art teaches each and every element of the claimed invention, and that the prior art provides some teaching, suggestion or motivation, or other legitimate reason, for combining the references in the manner claimed. KSR International Co. v. Teleflex Inc., 127 S.Ct. 1727, 1739-41 (2007); In re Oetiker, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992). In this case, the Examiner has failed to establish a prima facie case of obviousness against claims 1-6, 22-32, 63-66, 81-84, 90-92, 98, 102, 106 and 110 because the Oishi Document and the JP'266 Document, either alone or in combination, fail to teach or suggest each and every claimed limitation, recited as in the claims.

ii. The Oishi Document

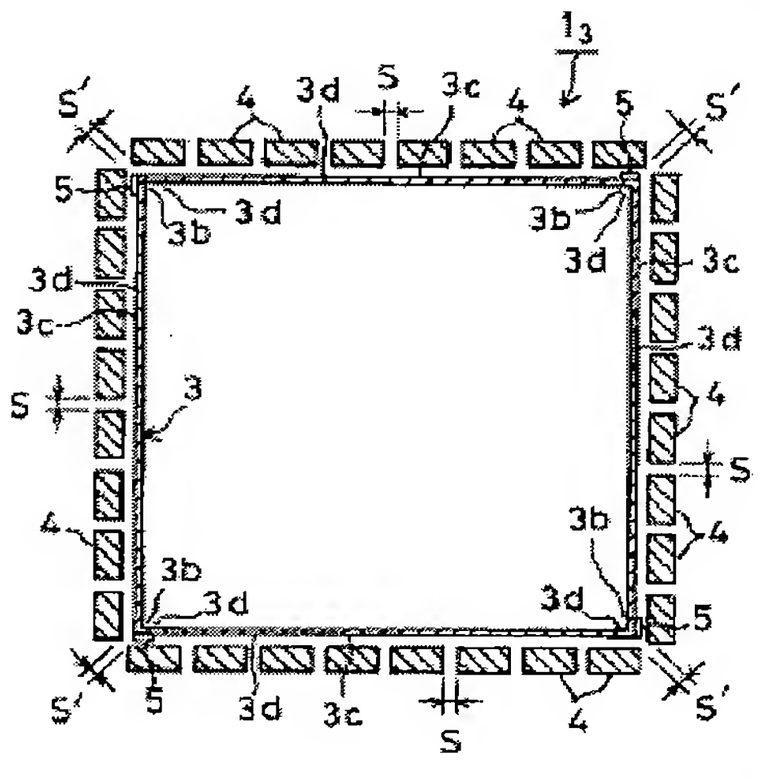
JP 10-152735 (hereafter, the "JP'735 Document"), and corresponding JPO Machine English translation (hereafter, the "JP'735 Machine Translation"), which are collectively referred to as the "Oishi Document," disclose a "seawater corrosion resisting copper-base

alloy, cultivation net for fishes, and crawl for cultivation of fishes" (See Patent Abstracts of Japan corresponding to JP 10-152735). More specifically, the JP'735 Document discloses a crawl for cultivation of fishes constituted by suspending a cultivation net (3) for fishes with plural floats (4) and attaching sacrificial anodes (5) composed of zinc plates to respective corner parts (3b) of the cultivation net (3), respectively (See, e.g. Patent Abstracts of Japan corresponding to JP 10-152735). Figures 1 and 4 of the JP'735 Document show these features, and are reproduced below for convenience.

【図１】



【図４】



The cultivation net (3), according to the JP'735 Document, is constituted of a wire made of seawater corrosion resisting copper-base alloy having a composition consisting of, by weight, 62.0-69.0% copper, 0.2-1.0% tin, 0.02-0.15% antimony, one or two elements selected from 0.02-0.15% phosphorus, 0.1-1.0% nickel, and 0.05-0.8% iron, and the balance zinc with inevitable impurities (See Patent Abstracts of Japan corresponding to JP 10-152735). The mutual spacings S, S' between neighboring floats (4), (4') are regulated to ≤30cm, respectively, and the positions of respective sacrificial anodes (5) are located at a depth of 10-50cm from the surface of the sea, respectively (See Patent Abstracts of Japan corresponding to JP 10-152735).

The JP'735 Document focuses more on the net structure for fish cultivation than on the copper alloy used to make the net structure as evident from the Abstract and ¶¶ [0019] to [0028] of the JP'735 Document, (See, e.g., ¶¶ [0019] to [0028] of the JP'735 Machine Translation). Because the effect of ocean waves is not controlled by the material alloy fundamentally, the JP'735 Document discloses that the distance between each float of the net be less than 30 cm (JP'735 Document, ¶¶ [0020] to [0022]), and that oxide layers are formed on the material surface by placing several sacrificial anodes (5), made of zinc or aluminum, which are attached to the net in order to prevent the wire material diameter from decreasing (JP'735 Machine Translation, ¶¶ [0023] to [0027]). Further details regarding the net structure disclosed by the JP'735 Document are included in ¶¶ [0030] to [0044], and Figures 1 to 4.

The present invention, on the other hand, pertains to a "copper alloy material in wire or bar form," such as is used to form a netted structure, such as a fish cultivation net. As apparently conceded by the Examiner (Office Action, dated February 23, 2010, at 6, line 11), the JP'735 Document does not teach, or even suggest, (i) "<u>one or more elements selected from the group consisting of 0.02 to 1.5 mass% of Al, and 0.02 to 1.9 mass% of Si</u>" as recited by independent claim 1. However, this is not the only deficiency in the disclosure of the JP'735 Document, which also does not teach, or even suggest, (ii) "<u>the composition satisfies the relationship derived from the Cu content [Cu], the Sn content [Sn], the Al content [Al], and the Si content [Si], in terms of mass%, $62 \leq [Cu]- 0.5[Sn]- 3.5[Si]-1.8[Al] \leq 90$</u>," and (iii) "<u>the copper alloy material forms an Al-Sn coating or a Si-Sn coating when in seawater</u>" as recited by claim 1.

a. The Examiner's Inherency Argument with Respect to Metal Phase Structure is Untenable and Should be Withdrawn

As admitted by the Examiner (Office Action, dated February 23, 2010, at 4, lines 8-9), the JP'735 Document does not teach, or suggest, (iv) "the copper alloy material has a phase structure including an α phase, a γ phase, and a δ phase, and the total area ratio of the α, γ, and δ phases is 95 to 100%" as recited by claim 1. While the Examiner previously argued that the Oishi Document inherently disclosed the claimed phase structure because

> "Oishi teaches an overlapping composition and a substantially similar method of preparation by melt-solidification, rolling, casting as shown in instant pars. 17, 21, 20, etc."
> (Office Action, dated February 23, 2010, at 4, lines 9-12),

and cited MPEP § 2112.01 in alleged support of this contention, the Examiner's inherency argument is flawed for the following reasons, and must be withdrawn.

First, the JP'735 Document does not have an overlapping composition with the copper alloy material recited by claim 1 as amended because, as conceded by the Examiner, the JP'735 Document does not teach, or suggest, the element Si in the composition. The Federal Circuit has stated that a chemical composition and its properties are inseparable so that a composition made from identical components as the invention, and made using the same or similar techniques as the invention, should produce products having the identical composition as the invention and the same properties as the invention absent evidence to the contrary. In re Spada, 15 U.S.P.Q.2d 1655, 1657-58 (Fed. Cir. 1990).

In this case, however, contrary to Spada, the Examiner admits that the composition disclosed by the JP'735 Document is not identical to the composition of claim 1, as amended, because the JP'735 Document does not teach, or suggest, Si as a component of the

composition. Because the composition disclosed by the JP'735 Document is not identical to Applicant's claimed composition, the Examiner has no legal or factual basis for inferring that the metal alloy composition disclosed by the JP'735 Document inherently has the metal structure as claimed.

Applicant's specification, ¶ [0036], discloses that the presence of gamma and delta phases in alloys of the present invention has a positive effect on the various types of corrosion for fish cultivation nets, and that the metal structure of wire material used in making fish cultivation nets should be determined by balancing workability and corrosion resistance. The above-captioned application also explicitly discloses phase formation, and its optimum content with regard to alpha, gamma, delta, and other phases, while considering the aforesaid balance between workability and corrosion (Applicant's specification, ¶¶ [0035] and [0036]). It is clearly stated by the disclosure of the present application that the formation and content of each phase is determined not only by Sn content, but also by the relationships Y1 to Y4 and Y9, wherein Cu, Sn and other elements are related to each other (Applicant's original specification, ¶¶ [0025] and [0035] to [0037]). On the other hand, the Oishi Document is completely silent regarding the claimed relationships between alloying elements for wire material used to make a fish cultivation net. As would be understood by persons of ordinary skill in the art, the reason the Oishi Document does not teach, or suggest, the claimed relationships includes the fact that the Oishi Document tries to control effects from ocean waves, seawater, etc., by the net structure and the presence of a sacrificial anode.

Furthermore, the presence of Al and Si as recited in claims 3 and 4 is important to developing corrosion resistance. The above-captioned application discloses that the addition of Al and Si has positive effects on erosion-corrosion resistance in high-speed moving water, and on corrosion resistance against rubbing of fish bodies and materials, and is involved in achieving excellent corrosion resistance under various harsh conditions encountered in

seawater (Applicant's specification, ¶ [0035]). More specifically, as stated on page 35, lines 3-11, of Applicant's original specification,

> "a seawater netted structure formed of a large number of wires…or by rubbing of the wires against each other. Al and Si each form a strong, corrosion-resistant Al-Sn or Si-Sn coating over the surface of the wires. The coating enhances the wear resistance of the wires…as much as possible. A combination of Mn and Sn also form a corrosion-resistant coating. Specifically, Mn can form an intermetallic compound by combined use with Si and further enhance the wear resistance of the wires; hence, Mn mainly has the effect of forming an intermetallic compound preventing the wear and tear of the wires."

For all of the above reasons, the present invention according to independent claim 1, as amended, is substantially different from subject matter disclosed by the Oishi Document. Therefore, the Examiner's inherency argument is untenable and must be withdrawn.

For all of the above reasons, the Oishi Document fails to teach, or even suggest, each and every limitation recited in claims 1-6, 22-32, 63-66, 81-84, 90-92, 98, 102, 106 and 110. Therefore, the Oishi Document is insufficient to, by itself, establish a prima facie case of obviousness against any claim of the above-captioned application.

iii. The JP'266 Document

The JP'266 Document[1] discloses a corrosion resistant golden copper alloy that contains gallium and silicon for improved resistance to sea water and inorganic acids (See Exhibit C). More specifically, the JP'266 Document discloses a copper alloy that includes 1-40 wt.% of Ga, and 0.1-15 wt.% Si, and the remainder is copper (See Exhibit C). In a particular embodiment disclosed by the JP'266 Document, the golden-colored alloy includes 13.9 wt.% Ga and 0.8 wt.% Si, and a remainder of Cu (See Exhibit C). As would be instantly

[1] The Examiner provided only an Abstract allegedly corresponding to the JP'226 Document (See Office Action, dated February 23, 2010, at 6, line 6-8). Applicant files herewith, labeled as "Exhibit B." a copy of JP 49-40226. Applicant files herewith, labeled as "Exhibit C," a copy of an English Abstract corresponding to JP 49-40226.

appreciated by a person of ordinary skill in the art, both Ga and Si are essential and necessary elements of the alloy.

According to the JP'266 Document, (See Exhibit B, at 168, left col., lines 1-7), there is almost no improvement in corrosion resistance when either Ga (1-40 wt.%) or Si (0.1-15 wt.%) falls below the lower limit of the disclosed ranges for these two elements. In fact, the embodiment alloys nos. 1-7 listed in Table 1 on page 168 of the JP'266 Document each contain both Ga and Si without exception. Therefore, a person of ordinary skill in the art would understand that, according to the disclosure of the JP'266 Document, the mere presence of Si without Ga does not have, and/or is not expected to have, any influence on the corrosion resistance of the golden copper alloy.

Therefore, the JP'266 Document does not teach, or suggest, that adding < 1% Si to a copper alloy should increase corrosion resistance of the alloy as the Examiner contends (Office Action, February 23, 2010, at 6, lines 12-15) because the JP'266 Document is limited to golden copper alloys that include both Ga and Si.

iv. <u>Summary of the Disclosures</u>

The Oishi Document discloses a wire made of seawater corrosion resisting copper-base alloy having a composition consisting of, by weight, 62.0-69.0% copper, 0.2-1.0% tin, 0.02-0.15% antimony, one or two elements selected from 0.02-0.15% phosphorus, 0.1-1.0% nickel, and 0.05-0.8% iron, and the balance zinc with inevitable impurities. However, the Oishi Document further discloses that the crawl for cultivation of fishes made by suspending a cultivation net (3) for fishes with plural floats (4) includes sacrificial anodes (5) composed of zinc plates attached to respective corner parts (3b) of the cultivation net (3). The JP'266 Document discloses a golden-colored copper alloy that includes 1-40 wt.% of Ga, and 0.1-15

wt.% Si, and the remainder is copper, wherein the combination of Ga and Si in the alloy increases improved resistance to sea water and inorganic acids.

The combination of the Oishi Document and the JP'266 Document still does not teach, or even suggest, (i) "one or more elements selected from the group consisting of 0.02 to 1.5 mass% of Al, and 0.02 to 1.9 mass% of Si," (ii) "the composition satisfies the relationship derived from the Cu content [Cu], the Sn content [Sn], the Al content [Al], and the Si content [Si], in terms of mass%, $62 \leq [Cu]- 0.5[Sn]- 3.5[Si]-1.8[Al] \leq 90$," and (iii) "the copper alloy material forms an Al-Sn coating or a Si-Sn coating when in seawater" as recited by claim 1. Furthermore, because each of the Oishi Document and the JP'266 Document are silent regarding the particular phase recited by claim 1, the combination of the Oishi Document and the JP'266 Document cannot teach, or even suggest, (iv) "the copper alloy material has a phase structure including an α phase, a γ phase, and a δ phase, and the total area ratio of the α, γ, and δ phases is 95 to 100%" as recited by claim 1.

For all of the above reasons, the combined teachings of the Oishi Document and the JP'266 Document fail to teach or suggest each and every limitation of the claimed invention and, therefore, cannot establish a prima facie case of obviousness against claims 1-6, 22-32, 63-66, 81-84, 90-92, 98, 102, 106 and 110 of the above-captioned application.

v. The Examiner has Adduced No Legitimate Reason for Combining the Disclosures of the Oishi Document and the JP'266 Document, and the Examiner has Established No Reasonable Expectation of Success Even if the Combination Was Made

A proper rejection under Section 103 requires showing (1) that a person of ordinary skill in the art would have had a legitimate reason to attempt to make the composition or device, or to carry out the claimed process, and (2) that the person of ordinary skill in the art

would have had a reasonable expectation of success in doing so. PharmaStem Therapeutics, Inc. v. ViaCell, Inc., 491 F.3d 1342, 1360 (Fed. Cir. 2007). In this case, the Examiner has adduced no legitimate reason to justify the combination of the Oishi Document and the JP'266 Document, and the Examiner has not demonstrated that a person of ordinary skill in the art would have enjoyed a reasonable expectation of success of obtaining Applicant's claimed alloy even if the combination was made.

The present invention aims to improve erosion-corrosion resistance and corrosion resistance of the copper alloy material itself against ocean waves, winds, and rubbing against materials in seawater, etc. (See, e.g., ¶¶ [0008] and [0046] of Applicant's original specification). The copper alloy material, in accordance with the present invention, includes Cu, Sn, one or more elements selected from the group consisting of Al and Si, and a remainder of Zn, wherein the copper alloy material has excellent seawater resistance. The alloy disclosed by the Oishi Document includes Cu, Sn, Sb, one or more elements selected from the group consisting of P, Ni and Fe, and the remainder is Zn. As admitted by the Examiner, the Oishi alloy does not include Si. The JP'266 Document discloses a golden-colored alloy that includes Cu with both Ga and Si added to improve resistance to seawater and inorganic acids. In view of the above facts, a person of ordinary skill in the art would have absolutely no reason whatsoever to add only Si to the alloy disclosed by the Oishi Document in the hopes of improving corrosion resistance. In addition, a person of ordinary skill in the art would not have enjoyed a reasonable expectation of success of obtaining an alloy in accordance with the present invention even if the modification asserted by the Examiner was made because a person of ordinary skill in the art would expect that both Ga and Si together must be added to Cu in order to achieve improvements in resistance to sea water and inorganic acids.

The present application discloses that a Sn-rich coating forms on the surface of the copper alloy material of the invention because of the increased Sn content (Applicant's original specification, at ¶[0025]). Also described is the formation of a corrosion-resistant Al-Sn or Si-Sn coating over the surface of the wires (Applicant's original specification, at ¶ [0035]). The Oishi Document, on the other hand, is silent about the presence of Al or Si. Those skilled in the art would not have had any reasonable expectation of obtaining a copper alloy that forms an Al-Sn or Si-Sn coating when in sea water even if the combination of the Oishi Document and the JP'266 Document was made. For the same reasons, a person of ordinary skill in the art would have no expectation of achieving the degree of corrosion resistance under harsh conditions achieved by the formation of corrosion resistant Al-Sn and Si-Sn coating of the present invention by combining the disclosures of the Oishi Document and the JP'266 Document, both of which are silent regarding the formation of corrosion resistant Al-Sn and/or Si-Sn coatings.

For all of the above reasons, the Examiner has failed to establish a prima facie case of obviousness against any claim of the above-captioned application.

vi. Applicant's Evidence of Superior and Unexpected Results

When an applicant adduces specific data demonstrating substantially improved results, and states that the results are unexpected, then in the absence of evidence to the contrary, applicant has established unexpected results sufficient to prove the invention is nonobvious. In re Soni, 34 U.S.P.Q.2d 1684, 1687-88 (Fed. Cir. 1995). The invention need only be compared to the closest prior art, In re Johnson, 223 U.S.P.Q. 1260, 1264 (Fed. Cir. 1984), however, it is acceptable to compare the invention to subject matter that is closer to the invention than the closest prior art. Ex parte Humber, 217 U.S.P.Q. 265, 266 (Bd. Pat. App. & Inter. 1981). Assuming *arguendo* that the Examiner has established a prima facie

case of obviousness (which is an invalid assumption), Applicant has provided, in his specification, evidence of the superior and unexpected corrosion resistance achieved by the copper alloy material of the invention that is sufficient to overcome any alleged prima facie case.

As is known in the art, corrosion resistance of any material, under harsh conditions prevalent in the ocean, for example, occurs by various forms such as pitting, erosion-corrosion, cavitation and selective corrosion. Corrosion resistance is also affected by the usage environment, such as, for example, whether the material is used in running or moving water versus in stagnant water, or whether the material is used in a high temperature environment or at room temperature, or whether the material is used in seawater or fresh water, or whether the material is subjected to physical action (i.e., rubbing) or not, and so on. It is also known in the art that each alloying element may have its own effect or influence on a different type of corrosion.

As discussed above, the copper alloy material of the invention exhibits excellent corrosion resistance under various harsh conditions encountered in seawater due to the formation of Al-Sn and Si-Sn coatings while in use in seawater. However, this excellent corrosion resistance occurs provided that the necessary conditions in connection with the metal structure are present (i.e., the recited limitations with respect to alpha, gamma, delta, and other phases are met), and provided that the relationships Y1 to Y4 and Y9 are satisfied, which pertain to relationships between the contents of various alloying elements, namely, Cu, Sn, and so forth. The effect of the contents of such elements, such as Al and Si, is demonstrated by examples presented as shown in Tables 1 and 6 of Applicant's disclosure as originally filed.

In particular, example alloy nos. 301 to 305 and 401 to 404, which contain Sn and Al and/or Si, exhibit better corrosion resistance results in the harsh erosion-corrosion test

compared to example alloy nos. 101 and 206 without Al and/or Si (See Tables 1 and 6 of Applicant's disclosure). The erosion-corrosion test is performed in seawater to evaluate corrosion resistance under actual usage environments and is described in ¶¶ [0067] and [0068] of the above-captioned application.

As evident from Applicant's Tables 1 and 6, the average wear loss for example alloy nos. 101 to 206 is 27 mg/cm^2, 137 mg/cm^2, 77 mg/cm^2, and 294 mg/cm^2, under the test conditions of Test Condition I, of Test Condition II, of Test Condition III, and of Test Condition IV, respectively. On the other hand, the loss of example alloy nos. 301 to 305 and 401 to 404 is 25 mg/cm^2, 112 mg/cm^2, 65 mg/cm^2, and 229 mg/cm^2, under Test Conditions I to IV, respectively, revealing that the alloy nos. 301 to 305 and 401 to 404 are clearly substantially improved with respect to erosion-corrosion resistance. The difference between the present invention and subject matter closer to that of the present invention than the closest art of record (i.e., the Oishi Document) is more pronounced when the conditions are harsher. Furthermore, this substantially improved erosion-corrosion resistance exhibited by alloys of the present invention was unexpected.

In addition, example alloy no. 202 in Table 1 of the above-captioned application consists of Cu:63.4-Sn:0.5-Sb:0.7-Zn and is not an alloy in accordance with the present invention. Alloy no. 202 is a comparative alloy that is substantially similar to the alloy disclosed by the Oishi Document. Therefore, the erosion-corrosion test data obtained for example alloy no. 202, more likely than not, reflects the erosion-corrosion characteristics exhibited by the alloy disclosed by the Oishi Document.

The erosion-corrosion test results for example alloy no. 202, compiled from Table 1 of the above-captioned application, are as follows: 28 mg/cm^2, 145 mg/cm^2, 79 mg/cm^2, and 313 mg/cm^2, under the test conditions of Test Condition I, of Test Condition II, of Test Condition III, and of Test Condition IV, respectively. These results are substantially inferior

to those for example alloy nos. 301 to 305 and 401 to 404 of the present invention. In fact, all of the nine alloys, from example alloy nos. 301 to 305 and 401 to 404, show lower wear loss than example alloy no. 202 in every tested condition.

In view of the substantially improved and unexpected erosion-corrosion resistance of the invention alloys compared to example alloy no. 202 (which is substantially similar to the alloy disclosed by the Oishi Document), Applicant has shown a clear, substantial difference between the invention alloys as claimed and the alloys disclosed by the Oishi Document (i.e., the closest prior art). Accordingly, although corrosion resistant may also depend on other factors such as (i) metal structure, (ii) Sn content, and (iii) the relationships between Cu, Sn and the other alloying elements, a person of ordinary skill in the art should still conclude that the presence of Al and/or Si in a small amount unexpectedly imparts excellent corrosion resistance under conditions equivalent to the erosion-corrosion test, which represents how the alloy material should be affected by sea water, or by ocean waves moving at high speed, or by rubbing of wires made of the alloy against one another.

In sum, assuming *arguendo* that the Examiner has established a prima facie case of obviousenss against Applicant's claimed invention (which is an invalid assumption), Applicant's evidence of substantially superior and unexpected erosion-corrosion resistance with respect to example alloy no. 202 (which is substantially similar to the alloy disclosed by the Oishi Document) is sufficient to overcome the alleged prima facie case.

III. CONCLUSION

In view of the present amendment, claims 1-6, 22-32, 63-66, 81-84, 90-92, 98, 102, 106 and 110 are in compliance with 35 U.S.C. § 112. Furthermore, the Examiner has failed to establish a prima facie case of obviousness against any claim of the above-captioned application because neither the Oishi Document nor the JP'266 Document, either alone or in

combination, teaches or suggests , (i) "one or more elements selected from the group consisting of 0.02 to 1.5 mass% of Al, and 0.02 to 1.9 mass% of Si," (ii) "the composition satisfies the relationship derived from the Cu content [Cu], the Sn content [Sn], the Al content [Al], and the Si content [Si], in terms of mass%, $62 \leq [Cu]- 0.5[Sn]- 3.5[Si]-1.8[Al] \leq 90$," (iii) "the copper alloy material forms an Al-Sn coating or a Si-Sn coating when in seawater," and (iv) "the copper alloy material has a phase structure including an α phase, a γ phase, and a δ phase, and the total area ratio of the α, γ, and δ phases is 95 to 100%" as recited by claim 1. The Examiner has also failed to establish a prima facie case of obviousness against the claims of the above-captioned application because the Examiner has failed to establish any legitimate reason for combining the disclosures of the Oishi Document and the JP'266 Document, and the Examiner has failed to demonstrate that a person of ordinary skill in the art would have enjoyed a reasonable expectation of success of obtaining Applicant's claimed invention even if the combination asserted by the Examiner was made. In addition, Applicant has provided, in the originally filed disclosure of the above-captioned application, evidence of unexpectedly and substantially superior erosion-corrosion resistance that is achieved by copper alloy material of the present invention over alloy disclosed by the Oishi Document, which is the closest prior art. Therefore, even if the Examiner has established a prima facie case of obviousness (which the Examiner has not done), Applicant's evidence of substantially superior and unexpected results is sufficient to overcome the alleged prima face case and demonstrate the patentability of the pending claims.

For all of the above reasons, claims 1-6, 22-32, 63-66, 81-84, 90-92, 98, 102, 106 and 110 are in condition for allowance, and a prompt notice of allowance is earnestly solicited.

The below-signed attorney for Applicant welcomes any questions.

Respectfully submitted,

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